

Utahn Wins National Science Competition

Young Science Innovators Awarded
\$530,000 at Intel Science Talent Search

WASHINGTON, D.C., – Intel Corporation in mid-March awarded Shannon Babb of Highland, Utah top honors and a \$100,000 scholarship in the Intel Science Talent Search. Babb, the competition's first Utah winner, will take her place among esteemed alumni that include six Nobel Laureates, three National Medal of Science winners, 10 MacArthur Foundation Fellows and two Fields Medalists.

With a rare ability to combine research and remediation in environmental science, Babb, 18, of American Fork High School, conducted a six-month study to identify water quality problems in the Spanish Fork River. Babb, who started researching water quality at age 13, analyzed the chemical and physical properties along the river drainage system. She concluded that humans, through urban and agricultural factors, have a negative effect on the water quality of the river. She contends that the water quality problem can be resolved with a combination of restructuring and educating the public that household chemicals should not be poured down storm drains.

Nancy Mesner, an Extension Water Quality Specialist and associate professor at Utah State University in Logan, helped Babb get started with her interest in watershed science.

"She attended a 'Stream Team' training with her parents. Her interest just took off from there," Mesner remembered.

But Mesner is quick to point out that little if any of Babb's success can be credited to Mesner and her colleagues.

"People have been asking me what I did to mentor her, I tell them I just piqued her interest and got out of the way. She basically did it all herself.

Yi Sun, 17, of The Harker School in San Jose, Calif., received second-place honors and a \$75,000 scholarship. Sun discovered new

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Plan Seeks to Improve Quality of San Pitch River



Though the watershed plan was just released in March, river restoration work has already been taking place on select locations within the watershed for the past couple of years. The plan will speed the process.

By John Hales and Sue Gillham

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from the Sanpete Messenger --3-15-2006*

After nearly a decade of being classified as an environmentally "impaired" waterway, there is now a plan to get the San Pitch River off the state's blacklist.

In a couple of meetings in recent weeks, Polly Johnson, Sanpete County's watershed coordinator, and Jay Olsen, chairman of the San Pitch Watershed Stewardship Group presented that plan, called the San Pitch River Watershed Water Quality Management Plan.

The name is long, but the goal is simple: improve the quality of the San Pitch's water.

Since 1998, the San Pitch River has been on a list—called the 303(d) list, named after the section of the federal Clean Water Act that mandates that it be kept. The list is made up of bodies of water in Utah that are too polluted to be used as the state intended them, or in more technical jargon, that don't support their "beneficial uses" as determined by the state's water quality standards.

Those uses include recreation, agriculture and fisheries.

But the problem, said Johnson, is that too many Total Dissolved Solids (TDS) are in the San Pitch, and she specifically referred to high salt content.

According to a study done by the Utah Division of Water Quality that determines the maximum allowable amount of pollution, the San Pitch's salinity needs to be reduced by 11 percent to be considered safe.

Johnson said while too much salt is the reason the San Pitch is on the 303(d) list, officials are also concerned about phosphorous and sediment content in the upper portion of the river.

The problem is not simply an environmental one; it could affect the very livelihood of many Sanpete residents.

According to a section of the recently published management plan, high salinity is a significant problem and can "impair crop land and reduce crop production."

Because of the high salinity of soil in the area of the watershed, Johnson said, sediment

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Survey reveals local concern for water quality, but lack of understanding and information

By Greg Larson

Three quarters of local residents are aware of water quality concerns in East Canyon Creek and Silver Creek, and seventy-eight percent feel that storm water pollution in the area is a serious issue, but almost as many residents don't know what happens to storm water after it disappears into the closest storm drain. In addition, most residents feel that water quantity in our creeks is less important than water quality, despite the fact that the two are inseparably linked. These insights, and many others useful to local planners and educators, were provided by a recent survey of over 200 adult residents in the 84060, 84068, and 84098 zip codes. The survey was conducted on behalf of the East Canyon Watershed Committee and Swaner Nature Preserve.

"I am truly grateful to all of the residents who participated in this survey," says Tina Quayle,

See "Survey" continued on page 6

Events Calendar: January - April 2006

Bear River Celebration / Free Fishing Day

Saturday June 10, 2006

Willow Park, Logan

Description: A free public festival celebrating the Bear River Watershed. All ages can enjoy booths, music and food while learning about the Bear River Watershed and all it's many resources. Fishing will also be available.

Contact: USU Water Quality Extension (435) 797-2580

2nd Annual Swaner Nature Preserve Watershed Festival

Saturday, June 10, 10:00 am to 2:00 pm

Basin Recreation Center Field House, 1388 W. New Main St., Kimball Junction

Description: The mission of the Watershed Festival is to educate our community about environmental issues facing the East Canyon Creek Watershed and the natural history, flora, and fauna of the basin. We intend to do this in a fun festival atmosphere that will appeal to all ages. Information will be presented through interactive displays, active tours, and formal presentations. It is open and FREE to ALL members of the community.

Contacts: Tina Quayle (tina@swanernature.org) and Greg Larsen (greg@swanernature.org, 435.649.1767)

Getting in Step with Using Social Marketing in Your Watershed Outreach Campaigns

Thursday, June 22, Noon - 5:00 p.m.

Location: Yarrow Hotel, 1800 Park Avenue, Park City Utah

Description: Three nationally recognized professionals in the field of social marketing, marketing research, audience assessment and developing marketing materials and outreach campaigns will teach a five-hour introductory workshop designed to help watershed committees and municipalities better plan, assess, implement and evaluate their watershed awareness and behavior change outreach campaigns.

Cost: The cost is \$15.00, which includes lunch and all workshop materials.

For more information: contact Jack Wilbur, 801-538-7098, or download a registration form from <http://www.ag.utah.gov/conservation/NPS2006Registration.pdf>. The registration form is for a larger conference. You would check the line for the post-conference workshop (\$15.00). Information on the entire conference is available at: <http://www.ag.utah.gov/conservation/npsconf.html>.

USDA Snow Survey Turns 100

The U.S. Department of Agriculture's Snow Survey Program, which water forecasters and managers have come to rely on, is celebrating 100 years of service to residents of the West. Governor Jon M. Huntsman, Jr. has declared the week of April 24th as Snow Survey Centennial Week in Utah, highlighting the need for accurate snowpack data to manage the state's water resources so vital to the citizens and visitors of our state.

The study of snow resources began in 1906 when Dr. James E. Church volunteered to climb Mount Rose each month to measure the effect of temperature change on snow melt and runoff into Lake Tahoe. That pioneering effort began the science of deep snow measurement and water supply forecasting that led to 1935 federal legislation expanding the snow survey and water supply forecasting program to all Western States.

Today, the USDA Natural Resources Conservation Service (NRCS) installs, operates and maintains an extensive, automated system designed to collect snowpack and related climatic data in the Western United States and Alaska. This system, called SNOTEL (for SNOWpack TELemetry), operates over 660 remote sites in mountain snowpack zones. In Utah, there are 88 remote SNOTEL sites reporting hourly data and 39 snow courses, where site visits and measurements are made three times per year. Often, sites are accessed by helicopter or snowmobile.

The type of data collected includes snow/water equivalent, snow depth, precipitation from rain and snow, air temperature, and soil moisture and temperature. The data are updated hourly

on the Utah Snow Survey Web site at <http://www.ut.nrcs.usda.gov/snow/index.html>.

Since water is the lifeblood of the West, snow survey data prove helpful to a number of customers, including researchers, river and reservoir managers, municipal water supply manager, emergency managers, power generation managers, recreation facility managers, fire control managers, and farmers and ranchers who rely on a consistent supply of irrigation water.

The Utah NRCS maintains a snow survey office near the airport in Salt Lake City. The five employees, including hydrologists and electronic technicians, serve all of Utah, most of Nevada and part of Idaho and California. The Snow Survey Manager in Utah is Randy Julander, who can be reached at (801) 524-5213 x12.

The first snow survey in Utah was conducted by Salt Lake City in 1912, followed by the college of agricultural engineering in the 1920's, before being handled by NRCS (formerly Soil Conservation Service) in the 1930's.

“Intel” Continued from Front Page

geometric properties of random walks, a mathematical theory with applications to computer algorithms and polymers.

Yuan “Chelsea” Zhang, 17, of Montgomery Blair High School in Rockville, Md., received third-place honors and a \$50,000 scholarship. Zhang researched the molecular genetic mechanisms behind heart disease. Specifically, Zhang implicated CX3CL1 molecules as contributing to plaque build-up in the arteries. This knowledge can lead to the development of new medicines for atherosclerosis.

Sponsored by Intel since 1998, the STS is America's oldest and most prestigious high school science competition and is part of the company's \$100 million annual commitment to improving education around the world.

Intel Chairman Craig Barrett, a long-time advocate for improving science and math education, praised the contributions these young scientists are poised to make.

“The talent represented at Intel STS is a dramatic illustration that investing in science and math education will pay great dividends for the future of American innovation,” Barrett said.

Rounding Out the Top 10

Fourth- through sixth-place winners each receive a \$25,000 scholarship:

- Nicholas Wage, 17 of Appleton East High School, Appleton, Wis., for his project, “Character Sums and Ramsey Properties of Generalized Paley Graphs.”

- Jerrold Lieblich, 17, of Ward Melville High School, East Setauket, N.Y. for his project, “When the Brain Doesn't Hear What the Mind Does: A Lexical Approach to McGurk Adaptation.”

- David Kelley, 18, of Highland High School, Highland, N.Y., for his project, “Quantum Tunneling Effect of Electron Bubbles at the Liquid-Vapor Interface in Liquid Neon and Its Application to a Time Projection Chamber Neutrino Detector.”

Seventh- through 10th-place winners receive a \$20,000 scholarship:

- Myers “Abe” Davis, 17, of Baltimore Polytechnic Institute, Baltimore for his project, “Bounding Sphere Images: A Parametric Bounding Volume Hierarchy for Collision Detection on the GPU.”

- Adam Solomon, 16, of John F. Kennedy High School, Bellmore, N.Y., for his project, “The Effects of Age on Brown Dwarf Spectral Features in the Near-Infrared.”

- Evan Gawlik, 17, of Pinehurst, N.C., attends the Texas Academy of Mathematics and Science, University of North Texas, for his project, “A Computational Study on New Krypton- and Argon-Bonded Molecules.”

- Kimberly Scott, 16, of Wellesley High School, Wellesley Hills, Mass., for her project, “A Partial Characterization of Ehrenfeucht-Fraisse Games on Fields and Vector Spaces.” The remaining 30 finalists receive a \$5,000 scholarship, and each finalist receives an Intel® Centrino™ mobile technology-based notebook computer.

Utah Watershed Review:

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<http://ag.utah.gov/conservation/uwr.html>
(801) 538-7098-- Jack Wilbur, editor
E-mail: jackwilbur@utah.gov

Social Marketing Forum

An Introduction to Social Marketing

By Jack Wilbur
Editor, Utah Watershed Review

Just more than 14 years ago I began working for the Utah Department of Agriculture and Food as the Utah Nonpoint Source Task Force Information and Education (I&E) Coordinator. At that time my peers and I engaged in the I&E projects that we believed would work best. Very little, if any research went into determining the effectiveness of our outreach tools, which included brochures, fact sheets, school presentations, articles in local newspapers, and, yes, newsletters like Utah Watershed Review.

Today, I&E, or outreach efforts for the most part, have evolved into planning, research and evaluation-oriented campaigns based in the principles of social marketing.

What is Social Marketing?

In the simplest terms, social marketing can be defined as the application of commercial marketing techniques to social problems. So, instead of selling hamburgers, you are selling a life without heart attacks. Instead of selling teenagers the newest video gaming system or the hottest fashions, you're pitching the benefits of abstinence to prevent unwanted pregnancy and the spread of disease.

What does any of that have to do with watersheds and water quality? Everything. The principles of social marketing are universal. The techniques don't change much with the subject matter. What drives the look and content of a social marketing campaign is the audience and the message. Some campaigns are as large as many corporate marketing campaigns. Thousands of dollars are spent on research and millions go into implementation and evaluation. The Truth about tobacco campaigns are a great example of social marketing on a large corporate-size scale. Other campaigns are as small as the communities for which they are intended.

A key concept behind social marketing is that it is an integrated approach to changing behavior and sustaining behavior change. Social marketing is not social advertising, at least not alone. Advertising can be very effective at raising awareness and evoking emotion. Those are important pieces of the puzzle. But learning usually comes with deeper, more one-on-one exchanges. So mass media is often integrated with formal or informal education presentations, in-depth literature, internet inquiries, or person to person conversations.

Who Can Do Social Marketing?

The answer to that question is one of those "I have good news and bad news" answers. I'll give you the bad news first: There is an art to it and social marketing as we know it today is the result of decades of social science research and implementation. While it's not rocket sci-

ence, people do get degrees in marketing, social marketing and marketing research.

Now for the good news: it's all learnable and it's all scalable. You may not now understand the differences between qualitative and quantitative research, you may not know what market segmentation is, and you may only offer a blank stare when asked to name the 4 Ps of marketing. However, you can learn what those and other terms mean and how to use them without going back to school.

If you are in charge of the stormwater marketing for a large city, you can probably budget professional marketing research into your campaign. If that research indicates that television ads are one of the tools you should be using, you can probably figure out how to come up with the money for professional production and enough advertising dollars to ensure a significant portion of your target audiences will actually see the spot. But what if you are in a small rural watershed that is starting to grow and diversify somewhat? Social marketing campaigns can be done on a neighbor-to-neighbor level as effectively as on a national television scale. Often times the community-based campaigns ultimately work better at changing behavior.

Why is Social Marketing Important?

Effective outreach campaigns can take place without any knowledge of social marketing principles by the individuals or agencies in charge. One of my favorite examples of this is the Chalk Creek Watershed program. If you had asked NRCS employees Lee Broadbent or Shane Green what social marketing was 10-15 years ago as they were starting to knock on doors and talk to farmers about changing some of their practices, I bet you'd have gotten a blank stare. In fact, neither of them may know to this day what social marketing is, but they and other rural watershed program coordinators in Utah are masters at a community-based, neighbor-to-neighbor version of social marketing. However, there are advantages in most cases to doing research based social marketing:

- ✓ It helps you define and reach the target audiences that are key to the success of your overall watershed program.
- ✓ It helps you customize your message(s) to those targeted audiences, which
- ✓ Helps you create greater and longer-lasting behavior change in those audiences.

There is one other reason to engage in social marketing at any level, large or small: it works!

What to Expect from this Page

As a new addition to the pages of Utah Watershed Review, the Social Marketing page will offer something this publication has not offered in the past: behind the scenes tools and resources for people and groups trying to conduct outreach programs with an ultimate goal of changing behavior.

Sustainable behavior change does not come easily. It takes a lot of planning, research and targeted implementation of messages and information that provide a better alternative to existing behaviors.

As the months progress, this page will offer background and useful tips on how to conduct targeted outreach designed to change behavior. Readers will be able to learn marketing principles such as the 4Ps: product, price, place and promotion. Marketing research principles and methods will be discussed. Materials and resources will also be available.

In the next issue we will introduce the four basic phases of a social marketing campaign: planning, assessment, implementation and evaluation.

Free Outreach Planning, Assessment, Implementation, Evaluation Resources:

Community Culture and the Environment: A Guide to Understanding a Sense of Place-- EPA 842-B-01-003. November 2002. Contact the National Service Center for Environmental Publications at (800) 490-9198

Getting in Step: A Guide for Conducting Watershed Outreach Campaigns--EPA 841-B-002. December 2003. Contact the National Service Center for Environmental Publications at (800) 490-9198

Getting in Step: Engaging and Involving Stakeholders in Your Watershed--available online at www.epa.gov/owow/watershed/outreach/documents.

Extension Offers Several Water Quality Educational Programs for Youth and Adults

By Andree` Walker
Utah State Univeristy Water Quality Extension

Are you looking for activities and programs related to water quality? Would you like to teach water quality topics but don't have the resources and/or background? Utah State University Water Quality Extension's programs may be just what you need! These programs help students understand how streams and lakes function within watersheds and how activities and land use in the watershed affect the health of the water bodies. The students develop a sense of place and a sense of community. The programs encourage students to become involved in their watersheds through activities ranging from monitoring to stewardship and community outreach projects.

Our programs are very successful and have consistently reached over 6,000 youth per year in programs ranging from 45 minutes to all day. We also provide educator training on topics such as watershed functions, water monitoring, macroinvertebrates, wetlands, and elementary age water activities.

Our programs and activities are flexible and can be used with all ages, including adults. The activities can be used in a variety of settings, including, but not limited to

- water fairs
- afterschool programs
- in-class presentations
- nature centers
- summer camps
- 4-H
- boy and girl scouts
- informational booths
- citizen monitoring groups



YOUTH ACTIVITES / PROGRAMS:



Bugs Don't Bug Me (for all ages) – Students learn about aquatic macroinvertebrates (critters that live in the water, have no backbone, and are visible to the naked eye), the adaptations they have to live in the water, macroinvertebrate anatomy, and feeding habits. We also relate these activities to water quality, and older students may want to evaluate the quality of the water using the macroinvertebrates as an indicator.



Stream Side Science (for older students, grades 6-12) – Students monitor the quality of a local lake, river or stream through hands-on field tests and data collection. We provide equipment for and assistance in monitoring dissolved oxygen, temperature, turbidity, pH, and nitrogen. Participants are helped to not only understand their test results, but to also make a connection between what the tests say and the implications the results have on the health of the water body. Students may also want to include macroinvertebrate and riparian area studies in their monitoring activities. We provide 11 lesson plans and activities on water quality monitoring in our Stream Side Science Manual. These lesson plans are also correlated to the 9th grade Earth Systems Science standards in Utah schools. Check out website for a PDF of the manual, or call (435) 797-2580 to receive a hard copy.

Utah Stream Team (all ages) – The Utah Stream Team Manual is a comprehensive monitoring manual designed for use by citizens wanting to know more about their local waterbody. The resources provided in the manual give background information, simple monitoring techniques, and explanations of the monitoring results. This manual is perfect for anyone interested in starting a monitoring program in their area.



Water Quality Activities (for younger students, grades k-6) – Students learn about water pollution through activities involving graphing and math skills as well as critical thinking and predicting impacts. Our "Water Pollution Graphing Activity" introduced students to the idea of water pollution and has them identify possible pollution sources. In addition, plastic watershed models are available for check out from the County Extension offices. These models are a great way to demonstrate pollutant movement through a watershed. See our webpage for county contact information.



Water Cycle Activities (for younger students, grades k-6) – Participants learn about the water cycle through fun, hands-on activities. The activities range from a dice game to dramatic interpretation to a water cycle relay race. These activities can be easily tied to water quality as well.



ADULT ACTIVITES / PROGRAMS:

Citizen Monitoring - Citizens and local groups can participate in monitoring activities through the Utah Stream Team program (mentioned above) and "Adopt – A – Waterbody." Participation ranges from organizing a clean-up on a local stream to performing water chemistry tests and assessing water quality.



Utah Lake Watch – Interested citizens can help collect data on a local lake or reservoir. This program measures the turbidity or clarity of water which can help determine the health of the waterbody. Volunteers collect data at least once a month from March through September.

EDUCATOR TRAININGS:

Stream Side Science: This training focuses on watershed functions, and introduces participants to water quality monitoring, including dissolved oxygen, temperature, turbidity, nutrients, pH, macroinvertebrates and riparian vegetation. The trainings helps people understand and interpret the results of their tests.

Advanced Macroinvertebrates: This workshop introduces participants to classification of aquatic macroinvertebrates, gives hands on experience with field collection techniques, and identification. Participants walk away with a complete "bug" collection they have collected and identified themselves.

Project WET – This workshop focuses on activities for younger students relating to water concepts. Participants are given the Project WET guide which contains over 80 activities and lesson plans.

For more information contact: USU Water Quality Extension at (435) 797-2580, or go to our website at www.extension.usu.edu/water-quality

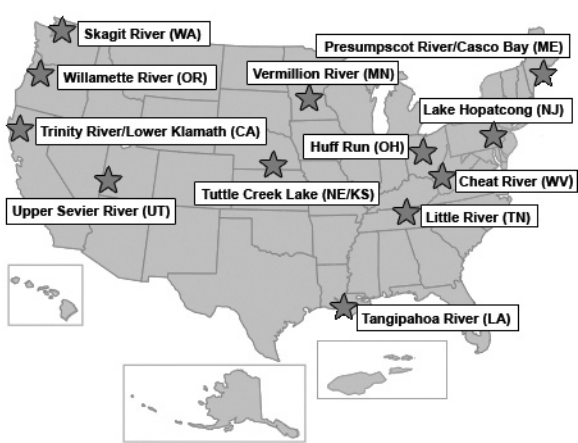
EPA set to Release Targeted Watershed Grant RFP

The request for proposals for EPA’s 2006 Targeted Watershed Grants (TWGs) is set to be released later this spring. In 2005, EPA awarded more than \$9 million to 12 of the nation’s most outstanding watershed coalitions as part of the agency’s third round of TWGs. Utah’s Upper Sevier River Watershed committee was among the groups recognized. The Upper Sevier River Community Watershed Committee received \$605,000.

The TWG program is relatively new and is designed to encourage successful community-based approaches and management techniques to protect and restore the nation’s waters.

The Upper Sevier River was the only Region VIII watershed awarded a targeted watershed grant in 2005. Three other watersheds west of the Continental Divide received money: Skagit River in Washington State, the Willamette River in Oregon, and the Trinity River/Lower Klamath in Northern California..

For more information on the 2005 awards and the 2006 schedule, log onto <http://www.epa.gov/owow/watershed/initiative/>.



“San Pitch” Continued from Front

that finds its way into the waterway contributes to the problem. Sediment and pollution finds its way into the stream, according to the plan, through eroding stream banks; erosion from rangelands, croplands and pastures; and runoff from confined animal feeding operations and irrigation systems.

In 1999, the Sanpete Soil Conservation District and the national Natural Resources Conservation Service established the Sanpete Pitch Watershed Stewardship Group to deal with the problem. During the last seven years of looking at the issue and how to solve it, the stewardship group created the plan recently presented.

The main purpose of the plan is to recommend a “series of specific actions and management strategies to improve ... conditions in the watershed,” Johnson said. The plan lists and describes 12 such actions (see table), most of which the stewardship group cannot do by itself, but can help Sanpete landowners and farmers do themselves.

In addition to listing recommendations for improving the watershed, the plan will also be helpful in getting funding for those recommendations.

“The group has already brought in about \$1 million in grant funding and money matched by landowners themselves,” she says, but that was without a management plan.

Now that a plan is in place, other funding doors should open. “When I apply for grants, some of the requirements are that you have a ... management plan written, and the EPA requires it to get more grant funding, so it will hopefully bring in more funding for more projects.”

Then the plan itself will help focus the money in areas that need the most help, she says. For example, Johnson talked about a project the stewardship group helped Scott Mower and Ross Terry with in the Fairview area.

To prevent streambed erosion on their land, Mower and Terry put in jetties to slow the flow of water and planted appropriate trees and grasses to hold soil in place. The project was successful. “With the high flows last year, the stream project we did helped quite a bit. It didn’t down cut the banks at all,”

Johnson said. Other projects have also had success. One resource available to landowners and farmers is soil testing. At the request of a landowner or farmer, soil can be tested to find the content levels of various nutrients. “We’ve had landowners come in and say they didn’t realize that they were over-applying their fertilizer and it’s saved them a lot of money,” Johnson said.

Not only does it save money, it also prevents excess fertilizer from eventually finding its way into the San Pitch, and thus polluting it. Other projects have included re-seeding 600-700 acres of land with grasses to hold the soil and crowd out noxious weeds, working with high school Future Farmers of America students to take soil samples, and establishing a county-wide fourth grade watershed education program.

But with all the success so far, it may take a long time before the San Pitch is declared safe enough to come off the environmentally- naughtiness list—“years and years and years,” Johnson said.

The reason for that is because it’s impossible to point to a single source of pollution as the culprit, say a factory or pipeline that empties directly into the river (called “point-source” pollution).

Non-point-source pollution is harder to curb because there’s no single place where pollutants enter the stream; it comes collectively from wherever there is erosion or runoff, for example.

The only thing that will improve the situation is time and the cooperation of anyone who owns land in the watershed.

Johnson said that cooperation is happening, though. Asked if local people viewed watershed management efforts as environmentalism and reacted against them, Johnson said, “I think they see it as conservationism, mostly. I mean, all we’re doing is improving the water quality. There haven’t been any problems at all.”

Johnson said people interested in preserving and improving the quality of the watershed can look at the plan, or request assistance in developing and funding a watershed-improvement project, by calling her at 835-4111 extension 14, or by sending email to: polly.johnson@nacdn.net.



the Executive Director at Swaner Nature Preserve, adding that “the results of this survey will allow us to get the best possible information to folks who want to help improve the water quantity and quality in our local creeks and streams.” In fact, Swaner Nature Preserve and the East Canyon Watershed Committee plan to roll out an extensive public education campaign in the coming months based on the results of the survey.

The campaign is likely to start by educating residents about storm water and where it flows. Storm water flowing off of lawns, golf courses, streets, and constructions sites is thought to be a major contributor of nutrients and sediment to local streams. Nutrients have wreaked havoc on East Canyon Creek in recent years, feeding excessive growth of aquatic plants, which in turn has reduced the oxygen available to trout and other aquatic species.

“We hope that by letting the public know that storm water flows directly into local creeks, and by suggesting some simple behavior changes, we can see measurable changes to water quality” says Mary Perry, of the group Friend of East Canyon Creek and also a member of the East Canyon Creek Committee. Some of the suggestions include careful application of fertilizer, use of native and low-water landscaping, and diligent cleaning up of dog waste.

Over half of the residents surveyed own at least one dog, and half of the dog owners regularly walk their dogs along creek trails. The survey, which represents over 20,000 residents (with a +/- 7% error), indicated that at least 5,900 dogs are regularly visiting creek corridors, and that the waste of more than 800 dogs regularly ends up along our local creeks. Thus, educating dog owners about the detrimental effects of their pets’ waste on local creeks will be a vital component of the campaign.

Perhaps the most difficult part of the campaign, and the most important, will be educating residents how important the amount of water in a creek is to its water quality. As Mike Luers, General Manager of the Snyderville Basin Water Reclamation District explains, “The most serious problem facing the creek is water quantity or the lack of water. Conserving water in the [East Canyon] watershed is essential to improving its water quality.” Because nutrients and other pollutants are less diluted during periods of abnormally low flow, the amount of water left in the creek during the summer irrigation season is critically important to the quality of water during those periods. Low flow also produces higher water temperatures and shallow water, which both exacerbate the low oxygen concentrations in the stream

“As Park City continues to grow and water becomes increasingly scarce, educating our community about ways to reduce pollution and conserve water will become vitally important,” says Tina Quayle. Indeed, with the population of Park City on pace to double or even triple within several decades, an informed community is perhaps the only way to protect the health of our local creeks. *Those interested in learning more about the challenges facing East Canyon Creek and*

Great Salt Lake Forum Scheduled

FRIENDS of Great Salt Lake is hosting their 2006 Great Salt Lake Issues Forum scheduled for May 4,5 &6th.

The forum’s title is “Range-wide Migratory Bird Conservation and Great Salt Lake’s Role in Linking Partnerships in the Western Hemisphere.”

The purpose of the forum is to build understanding about partnering work in range wide migratory bird conservation in the western hemisphere. The audience will include linking partners from Canada, Mexico and the US, local professionals and other interested citizens from around the region.

Keynote speakers for the event will be Charles Duncan, Director of the WHSRN Executive Office, Brad Andres, USFWS, US National Shorebird Coordinator, Ian Davidson, South American Coordinator for Bird Life International

The program will cover hemispheric perspectives, bird information about the three major linking areas (Saskatchewan, Great Salt Lake and Nayarit, Mexico) and research and community work to support programs that promote migratory bird and habitat conservation.

The Friday and Saturday programs will be held at the new James V. Hansen Wildlife Education Center located at the Bear River Migratory Bird Refuge in Brigham City. I-15 Forest St. Exit 363

On Wednesday May 3rd at 7PM there will be a free public viewing of “Killer Flu” a documentary on H5N1 (avian flu). It was awarded best documentary at the Cannes Film Festival. The venue is the Main Salt Lake City Library (210 E. 400 S). Salt Lake City. A panel of experts will be on hand to answer questions.

On Thursday evening, May 4th, at the Alta Club from 5:30 - 9:00 pm, a reception/dinner and panel discussion is planned. The panel discussion will focus on the topic of Avian Flu: What is it? Why should we be concerned? What are public health officials doing about it? What are the implications for migrating bird populations?

Our panelists are
Dr. Mike Marshall, State Veterinarian,
Dr. Robert Rolfs, State Epidemiologist
Leslie McFarlane, Wildlife Disease Specialist,
Division of Wildlife Resources.

This is an important and timely topic for discussion. Please note that seating is limited for this event. Registration will be on a first come, first served basis.

A Forum Proceedings will be published and shared with all participants .

FRIENDS of Great Salt Lake is a nonprofit organization whose mission is to preserve and protect the Great Salt Lake Ecosystem through education, research and advocacy.

FRIENDS has hosted biennial Great Salt Lake Issues Forums since 1996. Each forum brings together policy makers, researchers, planners, industry, other stakeholders and interests. The purpose is to engage in constructive dialogue about the Lake, the future of its ecosystem, and its resources. And to illuminate the complexities involved in research, management and planning. Our 2006 Forum will extend the context of this dialogue to include the hemispheric perspective.

Early registration (by April 21) for full program (May 4,5 & 6th) all events, meals and receptions is \$90.

Registration after April 21 will cost \$120 for the entire package.

Student registration (by April 21st) is \$70 and after April 21st will be \$90.

There are capacity limits at both the Alta Club function on May 4th and seating at the James V. Hansen Center. Please contact Katie at 801-322-3216 or Lynn at 801-582-1496 with questions.

We are extremely excited about this event and hope that the discussions during the Forum will have a positive impact on raising awareness about the importance of hemispheric efforts to promote migratory bird and habitat protection.

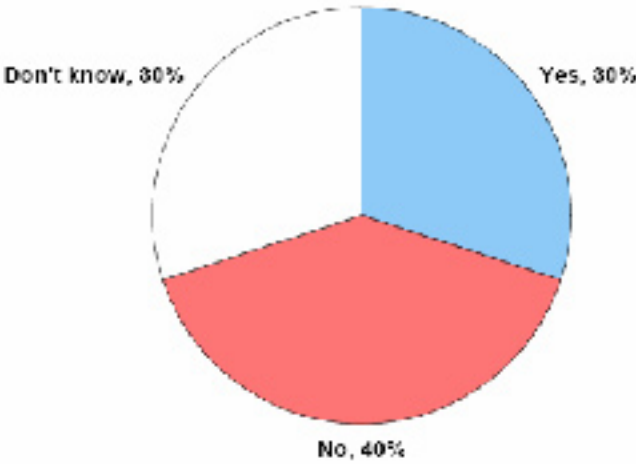
As you might expect, organizing a program of this magnitude is challenging but we are heartened by the support and encouragement that is coming from the community to do so.

The mission of FRIENDS of Great Salt Lake is to preserve and protect the Great Salt Lake Ecosystem through education, research, and advocacy.

801-583-5593
www.fogsl.org


its tributaries can visit www.eastcanyoncreek.org. To get involved with the education campaign or to volunteer, you can email admin@swanernature.org. The author is the Education and Land Manager at Swaner Nature Preserve.

Question 39. STORM WATER is the water from rain, melted snow, and sleet....from what you know or have heard, does neighborhood storm water go to a treatment plant?



Social Marketing Workshop Planned for June in Park City

Nationally recognized trainers to discuss social marketing, community assessment and outreach techniques



Workshop Announcement

Getting in Step:

using Social Marketing in your Watershed Outreach Campaigns

Social marketing is a powerful approach to addressing a wide range of today's social problems. Its goal is *to bring about voluntary behavior change in the lives of individuals that can have meaningful benefits, both for those individuals and for society as a whole.*

In other words, social marketing is about promoting sustained behavior change in individuals and groups. While that is an admirable goal, one reality cannot be overlooked:

CHANGE IS HARD!!!

This workshop will provide a practical introduction to planning, implementing and evaluating successful social marketing campaigns.

Social marketing is consumer, or target audience oriented and driven. Community research and assessment are critical components in a social marketing effort. Creating messages and using a media mix to which your audience will respond is your main objective.

Social marketing specialist, Jack Wilbur, Utah Department of Agriculture and Food, will walk participants through the basics of the social marketing process. Social anthropologist, Theresa Trainor, U.S. Environmental Protection Agency, Washington, D.C, will introduce workshop participants to community assessment and target audience research, and outreach expert, Charlie MacPherson, Tetra Tech Inc, Fairfax, VA, will look at how some successful campaigns have implemented and evaluated their projects.

The workshop registration form can be found on the internet at:
<http://www.ag.utah.gov/conservation/npsconf.html>

The registration fee is \$15.00, which includes lunch and workshop materials.

Workshop Date:	Location:	Time:
June 22, 2006	The Yarrow Hotel, Park City, Utah	Noon - 5:00 p.m.

National NPS Coordinators' Meeting Set for Park City

Nonpoint Source water pollution coordinators and experts from around the country are scheduled to participate in the 2006 National NPS Coordinators' Meeting in Park City, Utah, June 19-22, 2006.

The meeting, which will be held at the Yarrow Hotel, will combine high quality training opportunities with important programatic discussion about nonpoint source pollution control and watershed management.

The meetings begin Monday, June 19, 2006 with an optional watershed planning pre-conference workshop. EPA's new Watershed Planning Handbook will be discussed in detail during this interactive workshop that will teach participants how to develop and implement a watershed plan using all 9 elements. Participants will learn about new tools being developed and review

successful case studies as they work through the planning process.

The main body of the meeting runs Tuesday through Thursday at noon. Watershed planning and achieving measurable results will be the focus much of the time Tuesdays. Specific NPS categories will take over the discussion Tuesday afternoon and Wednesday morning. Topic areas include agriculture, mining, forestry, urban, coastal and outreach. Project evaluation, data management and monitoring will also be discussed in some detail.

A field tour of the East Canyon Watershed will take place Wednesday afternoon and end at the Utah Olympic Park for an evening reception, dinner and entertainment.

At the conclusion of the main meeting on Thursday morning, an optional post conference

workshop on social marketing and outreach will take place from noon to 5:00 p.m. Participants in this workshop will receive an overview of social marketing concepts and learn briefly about each of the phases of successful outreach campaigns. Most of the afternoon will then be spent on the linchpin element of successful outreach and social marketing campaigns: understanding and assessing your community and target audiences.

For more information about the meeting or optional workshops, please log onto <http://www.ag.utah.gov/conservation/npsconf.html>, or call Jack Wilbur, 801-538-7098.

San Pitch Watershed Day a Success

The second annual San Pitch Watershed Day, held at Snow College in Ephraim, Utah, in mid-April, gave every 4th grade student in Sanpete County a chance to get out of class and learn about water.

As part of the 4th grade science curriculum, students learn about the water cycle and how water moves and changes form. But this half-day of visual demonstrations and hands on learning gives 4th graders a more in-depth understanding of how important water is, especially in a semi-arid state like Utah.

Local watershed coordinator, Polly Johnson, organized the event. Students from each of the two school districts visited several rotations throughout the morning and early afternoon.

Presentations included ground water flow models, a stream erosion model with live vegetation, soil erosion demonstrations, a live hawk, courtesy of Hawk Watch that was part of a Utah wildlife presentation, and water conservation presentations.



Every 4th grade student from the North Sanpete and South San Pete School districts attended the 2nd annual San Pitch Watershed Day at Snow College in Ephraim.

Above: W.D. Robinson, Utah Dept. Ag. & Food (UDAF), talks to the students about stream erosion.

Left: Jack Wilbur, UDAF, demonstrates how ground water moves and can be polluted.

Below: students look at macroinvertebrates that are found at the bottom of Utah rivers and streams.

Interactive sessions included a water conservation game and macroinvertebrate investigation with live insects in clear plastic basins of water.

Students seemed to like the hawk and living insects above the other rotations, but they seemed to learn at every station.

The first year the Watershed Day was held outside at the County fairgrounds in Manti. The cool, rainy April day proved to be uncomfortable for many of the presenters, teachers and students. This year's event was held in the gym at the college. It was much warmer inside. The trade off was the extra noise generated in a small space.

Johnson says that she plans to continue the Watershed Day and possibly expand it to one day of education and one day of watershed restoration service projects, which is what the Upper Sevier River and Beaver River watershed committees do.

